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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/421,434	10/19/1999	TAKAAKI ASADA	36856.00226	4142

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EXAMINER

TUGBANG, DEXTER A

ART UNIT	PAPER NUMBER
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3729

DATE MAILED: 11/27/2001

7

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/421,434

Applicant(s)

ASADA, TAKA AKI

Examiner

Dexter Tugbang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 August 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. The applicant(s) Amendment filed 8/31/01 (in Paper No. 6) has been fully considered and made of record.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Claim Rejections - 35 USC § 112***

3. Claims 1-13 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 2, and 16 each have ambiguous claim terminology, which is unclear whether later recitations of originally recited terms are intended to refer to the originally recited terms. In Claim 1, the phrase of “a mechanical latent defect” (line 10) is unclear if this is referring to “a mechanical latent defect” (line 7) previously recited. How many mechanical latent defect(s) are there? The same problem occurs in Claim 2, which recites “a defect” (line 3). Is this referring to the same “mechanical latent defect” recited in Claim 1, or some other possible defect? The same problem, again, occurs in Claim 16 with the recitation of “a latent defect” (line 2). Is this referring to the “mechanical latent defect” previously recited in Claim 14?

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In Claim 2, the recitation of “completing...defect” (lines 1-3) is redundant since Claim 1 now recites, “completing...mechanical latent defect” (lines 9-10 of Claim 1). Is Claim 2 even needed? How many times must the transformer apparatus be completed?

The above questions and concerns render the claims as vague, indefinite, confusing and misleading.

***Claim Rejections - 35 USC § 102***

4. Claims 1-3 and 10-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Saitoh et al 5,295,487.

Saitoh discloses the claimed manufacturing and screening method of a piezoelectric transformer apparatus comprising: beginning manufacturing of the transformer apparatus by dicing or bonding (see Example 1); connecting a load impedance (circuit 24) to a generator (pulser 22 shown in Fig. 3); identifying whether the transformer apparatus has a mechanical defect by testing or measuring each transformer apparatus for *pulse echoes of frequencies, duty ratios, and pulse widths*, to specifically determine defective transformer apparatuses (see col. 20, line 39-56); and completing manufacturing of the transformer apparatus by assembling each of the transformer apparatuses in a medical diagnosing apparatus (see col. 21, lines 35-38 and col. 1, lines 15+), which meets all of the limitations of the claimed method.

*Claim Rejections - 35 USC § 103*

5. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the IEEE Publication to Kawamura et al, referred to hereinafter as Kawamura, in view of Allen et al 5,701,645.

Kawamura discloses a method of screening a piezoelectric transformer apparatus comprising: testing the transformer apparatus by connecting a load impedance to the generator (see Figs. 3 and 5); applying a stress signal to the generator to vibrate the transformer apparatus (shown in Fig. 7); and identifying whether the transformer apparatus has mechanical defects of mechanical strain (see Abstract).

Regarding Claims 3 and 17, the vibration levels shown by Kawamura in Figures 6, 7 and 9 are considered to be within a range of vibration levels, i.e. fatigue limit of strain, during actual use or operation of the transformer apparatus.

Regarding Claims 6 and 20, Kawamura further teaches the transformer apparatus including, or being connected to, a resistance element of an electric-*resistance* strain gage (shown in Fig. 4).

Regarding Claim 10, the transformer apparatus is considered to be inherently cooled since, after screening, the transformer apparatus is placed in normal atmospheric conditions.

Kawamura is silent as to the steps of beginning manufacturing of the transformer apparatus and completing manufacturing of the transformer apparatus.

Allen teaches a piezoelectric transformer manufacturing process in which the process begins with manufacturing multiple transformer apparatuses (shown in Fig. 1) and ends with completing the transformer apparatuses by either packaging each transformer apparatus

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individually or incorporating each transformer apparatus into other electronic assemblies (see col. 4, lines 33-35). *In between* the steps of beginning and completion of the transformer apparatuses, Allen teaches testing the transformer apparatuses to identify any defective transformer apparatus and cull, or remove, them from the non-defective transformer apparatuses (see col. 4, lines 47-50).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have improved the screening method of Kawamura by including the piezoelectric transformer manufacturing process of Allen, to positively manufacture multiple piezoelectric transformer apparatuses at one time and identify and remove any defective transformer apparatuses from the manufacturing process. The overall manufacturing process ultimately provides a means to remove all of the defective piezoelectric transformer apparatuses.

With respect to Claims 4, 5, 7, 9, 11, 18 and 19, it would have been an obvious matter of *engineering design choice* to choose any desired relative values of load impedance, type of stress signal, percentage of duty ratio, or type of piezoelectric transformer. Applicant has not disclosed that the load impedance being not less than 10 X the output impedance, sinusoidal continuous wave stress signal, duty ratio of burst wave being not more than 10%, and a Rosen-type piezoelectric transformer, are claimed features which solve any stated problem or are for any particular purpose, and it appears that the invention would perform equally well with the relative values of load impedance, stress signal, percentage of duty ratio, and type of piezoelectric transformer taught by either Kawamura et al or Allen et al.

***Response to Arguments***

6. Applicant's arguments filed 8/31/01 have been fully considered but they are not persuasive.

It is noted that the new grounds of rejection is based on the fact that Claims 1 and 14 more specifically recite that the previously claimed "defect", now is a *mechanical latent* defect. Accordingly, the rejection in the previous Office Action as to the merits of Clawson et al and Holroyd et al is hereby withdrawn. However, Kawamura is still applied above. In regards to the merits of Kawamura, the applicant contends that Kawamura does not teach connecting a load impedance to a generator.

The examiner most respectfully traverses. For example, in Figure 5 of Kawamura, the circuit diagram shows at least two voltage sources connected to the circuit, one alternating current AC and one direct current V. Either one of these sources can be read as a "generator". If this were not true, how else would the impedance and vibration signals (shown in Figures 6 and 7) be generated? Therefore, the limitations of "connecting a load impedance to said generator" are fully met by Kawamura.

***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

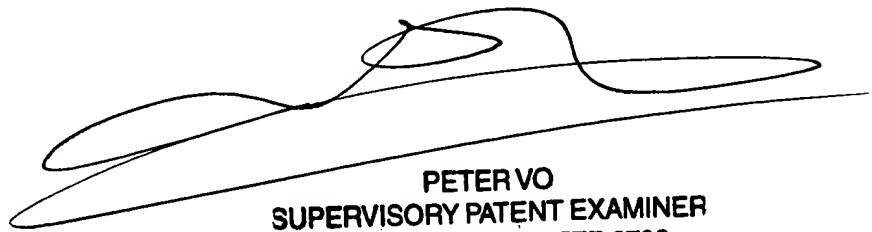
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dexter Tugbang whose telephone number is 703-308-7599. The examiner can normally be reached on Monday - Friday 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 703-308-1789. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3590 for regular communications and 703-305-3588 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0858.

adt  
November 7, 2001



**PETER VO**  
**SUPERVISORY PATENT EXAMINER**  
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